EBTS regular meeting –
First week of BGC on EBTS

Sedlacek Ondrej
29.11.2022
The V4 camera

- Casing looked ok
- Relay lens should be factory focused
- Measuring dark counts -> relay lens out of focus (a lot)
The V4 camera

- Casing looked OK
- Relay lens should be factory focused
- Measuring dark counts
  - relay lens out of focus (a lot)
    - Max gain, 0.5s int.
The V4 camera

Factory alignment paint broken

Moving the lens - photocathode distance → Increasing relay length

Factory alignment paint ok on lens itself
The V4 Focused - Dark counts
The V4 Focused - Dark counts

GSI cam - currently on EBTS
- 10607 counts/s

V4 cam - just delivered, magnification?
- 3836 counts/s
- V3 cam previously 886c/s
- V3 cam at LHC 50c/s
The V4 Focused - Dark counts

V3 cam - currently in LHC

V4 cam - just delivered
- To be measured with exactly same setup

~30%

~33%
**BGC at EBTS**

**Sim. Par** | **Values**
--- | ---
Beam intensity | ~0.4 A
Gun magnet | 300/200 A
BTV magnets | 600 A
Eq. int. time | 150 ms
EBTS background

**Sim. Par** | **Values**
--- | ---
Beam intensity | ~1A
Gun magnet | 300 A
BTV magnets | 600 A
Eq. int. time | 1

**No gas jet**

**ID004_CA300_CB600_M180_GasOFF-bin=10**

**Ne**

**ID005_CA300_CB600_M180_GasON-bin=10**
BGC at EBTS

<table>
<thead>
<tr>
<th>Sim. Par</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam intensity</td>
<td>~0.4A</td>
</tr>
<tr>
<td>Gun magnet</td>
<td>120 A</td>
</tr>
<tr>
<td>BTV magnets</td>
<td>840 A</td>
</tr>
<tr>
<td>Eq. int. time</td>
<td>1</td>
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</tbody>
</table>

Beam intensity

Gun magnet

BTV magnets

Eq. int. time

Ne

Beam "breathing"

N2
LHC distributed gas measurements last week
LHC distributed gas measurements last week

- Injection energy
- 585nm & Block ~6ks measurement with extended ROI
- Background evolution over one whole fill
- Displacing the camera to check the background structure

- Data to be analyzed
Gas pressure/gas jet measurements
Gas pressure/gas jet measurements

- Hot pressure gauge at Interaction chamber with wrong settings
  - Background gas pressure in interaction chamber - invalid
- Gas jet density measurements
  - Different setup - valid
Gas jet vs background expected values

- EBTS gas jet caused pressure increase - $1.24 \times 10^{-7}$ mbar
  - 0.7x9mm 3rd skimmer, Ne gas jet at 3 bar inlet
- Expected density Gas Jet/background ratio - 26.05
  - Background (upper limit) $1.24 \times 10^{-7}$ mbar - $3.07 \times 10^9$ par/cm³
  - EBTS measurements
  - Top gas jet density - $3.31 \times 10^{-6}$ mbar - $8 \times 10^9$ par/cm³
  - Moveable pressure gauge measurements at CI
- Smaller 3rd skimmer 0.3x9mm to be measured next week
Thank you for your attention
Any questions?
Moveable gauge vs e-beam setup

Gas jet is blocked by the moveable pressure gauge

No dump chamber connected

No dump chamber connected
Density was measured with a movable ion gauge system at the interaction point for neon and nitrogen at 5bars inlet pressure.